

Canadian Chemical Producers' Association



Responsible Care® Re-verification 2005-08

of

Cytec Canada Inc

January 15 & 16, 2008

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This document has been produced by a team convened by the Canadian Chemical Producers' Association (CCPA) to provide guidance to the above company, as a member or partner of the association, in meeting its obligations under Responsible Care. The material in it reflects the team's best judgement in light of the information available to it at the time of preparation. It is the responsibility of the CCPA member or partner company which is the subject of this report to interpret and act on the findings and recommendations in this guidance document as it sees fit. Any use which a third party makes of this document, or any reliance on the document or decisions made based upon it, are the responsibility of such third parties. Although CCPA members and partners are expected to share the results of this guidance document with interested parties, the association, its member and partner companies, their employees, consultants and other participants involved in preparing the document accept no responsibility whatsoever for damages, if any, suffered by a third party as a result of decisions made or actions based on this report.

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Responsible Care Re-verification: Cytec Canada Inc

EXECUTIVE SUMMARY AND TEAM CONCLUSIONS

A Responsible Care® re-verification for Cytec Canada, Inc., was carried out on January 15th and 16th, 2008 by a three-member Canadian Chemical Producers' Association (CCPA) appointed Team, augmented by a local community representative.

The re-verification was conducted at the company's Welland Plant located at 9061 Garner Road, Niagara Falls Ontario, with the manufacturing, research and other associated facilities at this site having been visited. The re-verification included interviews with a cross section of managerial, office, maintenance and production employees and reviews of documents relating to the various topics being addressed. The verification Team also met with four members of the Cytec Community Advisory Panel (CAP).

The Canadian Chemical Producers' Association's "Responsible Care Re-Verification 2005-2008 A Protocol to Help Us Improve" document was used for this re-verification.

The decision-making and actions of Cytec Canada Inc. are clearly underpinned by the Responsible Care® ethic. The company's overall management system is self-healing, seeking to continuously improve, to identify deficiencies and will likely act to correct them in a timely manner.

The re-verification team is satisfied with the approach used by the company to apply and meet the requirements of the Responsible Care® ethic and management system. The re-verification process of Cytec Canada Inc. is now complete with the publication of this report.

The team recommends that CCPA officially recognize this re-verification with an award at the next suitable occasion.

Signed: **Gerry Whitcombe** Date: **July 16, 2008**
Team Leader

For more information on this or a previous re-verification or on the company's original report for verification of Responsible Care-in-Place, please contact your local company site or the company's overall Responsible Care coordinator:

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Summary of Findings, Opportunities Best Practices and Extra Miles

This section of the report lists all **Findings Requiring Action**, *Opportunities For Improvement*, Best Practices and Extra Miles found in the body of the text. In all, the team

recorded 3 findings and 11 Opportunities for Improvement. Progress on action to resolve the Findings will require follow-up at each Leadership Group Meeting, with the local CAP(s), in the company's annual CEO re-commitment to CCPA, and along with the decisions pertaining to the Opportunities, in the next Responsible Care re-verification. The wording of each Finding Requiring Action, Opportunity and other comments found in this Executive Summary is identical to the wording used in the body of the report to avoid any possible misunderstanding of the team's intent.

Findings Requiring Action

- 1. It is a finding requiring action that a documented management system for Cytec Canada (to differentiate from Cytec's Welland Site RC14001 Management System) covering all aspects of Cytec's operations in Canada and all Codes of Practice does not exist.**
- 2. It is a finding requiring action that there is no documented decision about the need, or lack of need, to move to a higher level of PSM as described by MIACC in their Site Self-Assessment Tool.**
- 3. It is a finding requiring action that a documented community communication and dialogue management system for Cytec does not exist. Such a plan should include providing information of WCS, annual objectives for the management team, responsibilities for the activities and a method of measuring their effectiveness annually.**

Opportunities for Improvement

- 1. There is an opportunity for improvement to structure the Monthly and Quarterly safety meetings under the Responsible Care banner to broaden the scope and improve Responsible Care visibility.*
- 2. There is an opportunity for improvement to increase the visibility of Responsible Care by prominently displaying the Responsible Care logo on the lead-in page of the Welland Wire (perhaps as a watermark on the lead-in page).*
- 3. There is an opportunity for improvement to strategically distribute the Welland Wire to a wider readership. The team does not suggest mass distribution. However, the company should investigate locations within the community where the newsletter can get more exposure.*
- 4. There is an opportunity to improve the Codes of Practice assessment process by establishing a minimum standard for consistency of response within and between codes as well as scrutinizing responses to ensure the intent of the code has been met.*
- 5. There is an opportunity for improvement to include a review of the Codes of Practice assessment in the annual Management System Review of the Cytec Canada*

Responsible Care Management System (to differentiate from the Cytec Welland Site RC14001 Management System).

- 6. There is an opportunity for improvement to formalize the annual attestation process and create a annual focus for the Code Coordinators Team by including it in the Cytec Canada Responsible Care Management System.*
- 7. There is an opportunity for improvement to enhance the 'check' step of the overall Cytec Canada Responsible Care Management System by integrating CCPA required measures and developing appropriate measures to determine the ongoing effectiveness of Responsible Care within Cytec Canada's sphere of influence.*
- 8. There is an opportunity for improvement to better understand the toll operation in Australia to ensure Cytec Canada that all aspects of Responsible Care are being met.*
- 9. There is an opportunity for improvement to establish guidance on disposal of non-returnable containers for flotation chemical products to avoid inappropriate container usage.*
- 10. There is an opportunity for improvement to ensure data posted on the Niagara CAER web site pertaining to Cytec is current.*
- 11. There is an opportunity for improvement to review, on a regular basis, the community make-up to ensure worst case scenario information is delivered to as many potentially affected community members as possible.*

Best Practices

1. Although not a specific Cytec undertaking, it is a best practice that the Niagara CAER group publishes and maintains an annual report detailing the combined emissions of member companies as well as their historical performance, summaries and explanations.

1) INTRODUCTION AND OVERVIEW

1a) The Company

This is the report by the verification team on those operations of Cytec Canada Inc. which are covered by the company's commitment to the Responsible Care initiative of the Canadian Chemical Producers' Association. A description of the company in Canada and which operations are covered by this report can be found in Appendix 1.

1b) Responsible Care

Responsible Care is an initiative of the Canadian Chemical Producers' Association (CCPA) by which the association's members and partners commit to be, and to be seen

as, responsible companies within Canadian society. It is based on an ethical approach to the safe and environmentally sound management of chemicals – an approach which started in Canada but has since spread to over 45 countries around the world.

The Responsible Care Ethic:

We are committed to do the right thing and be seen to do the right thing.

We are guided towards environmental, societal, and economic sustainability by the following principles:

- *We are stewards of our products and services during their life cycles in order to protect people and the environment.*
- *We are accountable to the public, who have the right to understand the risks and benefits of what we do and to have their input heard.*
- *We respect all people.*
- *We work together to improve continuously.*
- *We work for effective laws and standards, and will meet or exceed them in letter and spirit.*
- *We inspire others to commit themselves to the principles of Responsible Care.*

The ethic is supported in Canada by six codes of practice covering relations with the communities where members' facilities are located and also responsible management throughout the product life cycle. Information on these codes of practice and related activities is available from company personnel listed in Appendix 2 of this report, or via the CCPA web site www.ccpa.ca (click on the "Who we are" tab for Responsible Care).

1c) Expectations of CCPA members and partners

Each CCPA member or partner company must formally commit to the ethic, principles and codes of practice of Responsible Care as a condition of membership in the association.

Progress in implementing these obligations must then be reported to CCPA, both to peers at special networking meetings and also via a formal reporting system to the association. Three years is the typical time allowed to new members for implementation. The association monitors progress and follows up by arranging for assistance where necessary to ensure that each company eventually meets its commitment.

When a company considers that its management processes are sufficiently comprehensive that they meet each of the 151 individual code requirements, it advises the association that implementation is complete to the stage of "Responsible Care-in-Place". Completion in this sense does not imply that nothing further needs to be done, but that a key milestone has been reached in a process of continuous improvement.

1d) Verification

A company's declaration that the expectations of Responsible Care are being met is an important first step in the verification process, which leads to confirmation and recognition of this by a team of industry and public representatives. Verification is conducted to strict protocols, developed by the association's members and others including several critics of the chemical industry and its operations. The first verification takes place when the company first states that its performance meets the expected level (*Responsible Care-in-Place*). This verification is designed to confirm, for the company's peers in CCPA and the public, the existence of a company wide ethic and management systems which ensure that the principles and codes of practice of Responsible Care are not only in place but are also practised and continuously improved within the organization.

Subsequent verifications are also conducted using a different protocol, approximately every three years after formal acceptance of the first verification, to ensure that the ethic and management systems of Responsible Care are firmly rooted in all the company's operations. This is known as *ongoing re-verification*.

Each verification is conducted by a team consisting of:

- knowledgeable industry experts with experience in Responsible Care;
- a representative of the public at large (usually with a public interest background and with experience in Responsible Care gained from serving on the CCPA's national advisory panel) and
- one or more representatives of the local communities where the company's facilities are located.

1d) i) Verification of Responsible Care-in-Place

For the purposes of this examination, a portion of the 151 code requirements is sampled in depth. These items are grouped into seventeen management systems, each of which is examined using a series of questions. Some of the questions are sent to the company in advance of the verification visit, so that supporting documentation, etc. can be available for prompt examination if desired. Additional questions are asked at the discretion of the team during the visit.

The approach is "top-down" rather than the "bottom-up" used in conventional audits, and the style of questions is intentionally open-ended, so that the answer cannot be a simple yes/no but calls for explanation. The questioning process starts with the executive responsible for chemical operations in Canada, and works down through the organization to examine the senior level intent and the corresponding support by action at the operating level.

Questions are generally of the following nature:

- does the organization have an effective management system in place to ensure understanding of Responsible Care?
- what is the process to determine and communicate the acceptable level of

performance?

- what is the process for assessing the performance of the system and effecting follow-up to meet or exceed the acceptable level of performance?
- what is the process for ensuring up-to-date documentation?
- do sufficient resources appear to be, or are thought by employees to be, in place?

The findings are summarized in a report which highlights:

- actions required by the team before they consider the company meets the expectations of Responsible Care;
- opportunities for improvement, which are recommended but not mandatory;
- recognition of any exemplary practices of the company which could be a model for other CCPA members.

The report is given to the company and CCPA, and the company is expected to share the report with interested persons in its communities as part of its dialogue process. If the team considers that actions are required before sign-off, they will arrange for follow-up to confirm that these are complete, and advise the company and CCPA in writing when these have been met to their satisfaction.

Responsible Care-in-Place verification of Cytec Canada Inc.,

Company name at the time: Cytec Canada Inc.,

Date of "In-Place" verification (visit): March 17, 18 & 19, 1997

Locations visited: Welland Site

Team follow-up needed: No

Date of final sign-off: May 1997

This Responsible Care-in-Place verification report is available from the contact at the company from whom you accessed this report, or from the company contact shown on page 6 of this re-verification report.

1d) ii) Re-verification

Approximately every three years after team acceptance of Responsible Care-in-Place, the CCPA schedules further verifications using a modified approach. The team is similar to that for the original verification, with at least one team member from the previous verification but a different leader.

In re-verification the team probes more deeply to examine how well the ethical basis of Responsible Care is understood and adopted within the company, and also how effective are the company's management systems in applying the ethical principles throughout the company's operations. This involves not only whether the company intends to do the right things, but also how it monitors activities and results and takes corrective action when deviations occur (often referred to as the Plan-Do-Check-Act parts of the management system).

For re-verification the company is given a more comprehensive list of documentation the team will need to see. Part of this must be sent to the team so they can study it in

advance. The questioning process is also more open, in that the team does not have to cover every topic in depth but can probe where they feel it is most relevant for that individual company, plus any areas where the company itself would like feedback on its performance.

After studying the information the team meets with the company to plan the visit stage of the verification, at which a schedule is agreed covering people the team wishes to interview in depth during the subsequent visit stage of the verification process. Most of these will be company personnel, but some will be representatives of organizations with which the company has business relationships – customers, transporters, etc. – and of local communities where plants, etc. are located.

The team examines to determine how strongly the Responsible Care ethic appears to be part of the company's way of doing business, including awareness of Responsible Care and its implications among the company's employees. The examination then progresses into a broad-ranging review of the company's management systems for Responsible Care, with a special investigation into certain topics highlighted by CCPA in the verification protocol.

The team looks at how effectively the company's management systems ensure that Responsible Care principles and code obligations continue to be met, as established in the initial Responsible Care-in-place verification. In subsequent verifications, however, the questioning process also considers how the company tracks and improves its performance regarding these obligations, including how performance measures are established and targets met (what is measured, what are the goals and how are they achieved). Actions taken on concerns, suggestions and recommendations raised in the last verification report are examined, as are significant issues and incidents that have arisen since the previous verification. The team then looks at how the company shared the results of this verification with the local community, and examines how robust the ongoing process of community dialogue appears to be and how issues and concerns are being identified and addressed.

The highlighted topics of special focus are ones where the feedback from the verification process and from the association's members has suggested the value of a closer examination of the general membership performance and comparison with the intent of the codes of practice. This does not necessarily imply that any given company is not performing well, but reveals the range of performance and identifies both cases where some improvement is recommended and also examples from which others can learn.

The highlighted topics include community dialogue, process safety management, site emergency preparedness and response, security regarding malicious threats that could impact public safety or well-being, health effects of products and plant emissions, the impact of plant emissions on the environment, product stewardship and "TransCAER" outreach. Although CCPA has no defined performance expectations for broader social responsibility, the team also looks at how the company sees and fulfills its role in this area. The team may also comment on other specific topics where the company has requested feedback.

Most recent previous Re-verification of Cytec Canada Inc.
Date of verification visits: February 1 & 2, 2005
Locations visited: Welland Site
Team follow-up needed: No
Date of final sign-off: March 30, 2005

The report below presents the findings of the team from this re-verification of Cytec Canada Inc. The report does not address all aspects of Responsible Care, as this was covered by the report of the original Responsible Care-in-Place verification. Instead, it focuses more on the items where the team felt there was an opportunity or need for improvement, plus any improvements or practices which are so significant that they should be shared with other CCPA members and partners as possible examples.

For more context or explanation of any of the items below, please get in touch with the contact at the company from whom you accessed this report.

2. General Findings of the Team

2a) Statement on the Ethic

Throughout the interview process the team checked for evidence that the Responsible Care ethic was visible and at work in the company, guiding the company's judgment, decisions and actions.

Team Findings:

The team found through interviews with company personnel and examination of documentation that the Responsible Care ethic is well understood and guides the actions and decisions of most people throughout the company.

2b) Employee Awareness

The team checked for general awareness and understanding of Responsible Care through employees interviews during plant tours and conversations with members of the JH&SC over lunch.

Team Findings:

The team found that the company has made considerable improvement in providing Responsible Care information since the last re-verification. They have developed a Responsible Care training module for all Canadian employees to be taken annually. They have introduced plant wide quarterly breakfast safety meetings and on a monthly basis they conduct a half hour safety meeting in groups. Although the meetings are not specifically directed towards Responsible Care, they do cover many related topics.

There is an opportunity for improvement to structure the Monthly and Quarterly safety meetings under the Responsible Care banner to broaden the scope and improve

Responsible Care visibility.

The team did not observe a Responsible Care flag flying at the entrance to the plant.

The company has a wonderful newsletter called "The Welland Wire". It is well received by employees and successful probably due to its comprehensiveness and 'folksy' style. Responsible Care topics have a prominent position in each edition. The newsletter does not have a prominent Responsible Care logo, it appears when relevant articles are present.

There is an opportunity for improvement to increase the visibility of Responsible Care by prominently displaying the Responsible Care logo on the lead-in page of the Welland Wire (perhaps as a watermark on the lead-in page).

The newsletter has complete in-house circulation and is distributed to the CAP. The team feels this distribution could be broadened.

There is an opportunity for improvement to strategically distribute the Welland Wire to a wider readership. The team does not suggest mass distribution. However, the company should investigate locations within the community where the newsletter can get more exposure.

The team had lunch with JH&SC and SAFE team members (four and six members respectively) and in general found understanding about Responsible Care to be high. The employees related Responsible Care to safety, health and the environment and several made the connection to community responsibilities. Employees are empowered to act to mitigate safety issues, and do not hesitate to do so. Management is normally responsive to employee issues and the ones that don't get resolved are few and far between. Several current issues discussed related to tardiness in acting on work orders and some issues related to accessing the action register.

A walk-around of various building and facilities and interviews with employees working at the time yielded very positive attitudes towards the company and their handling of issues related to safety, health and the environment. The employees universally were very knowledgeable about Responsible Care and all recognized the importance to their well being of having such an initiative.

2c) Overall Responsible Care Management System

It is a requirement of Responsible Care that companies have documented, sound management systems capable of ensuring that all operations of the company across all business units, functions and sites meet the ethic, codes of practice and other expectations of Responsible Care on an ongoing basis. A sound management system drives continuous improvement, and has the following attributes:

Plan	Do
<ul style="list-style-type: none"> • review code requirements • benchmark best practices • get input from stakeholders • decide on best approach • set targets for performance • assign responsibility 	<ul style="list-style-type: none"> • document • train people • assign resources • carry out activities
Check	Act
<ul style="list-style-type: none"> • audit • measure performance of system • measure performance from system • obtain stakeholders' feedback • assess employees' performance 	<ul style="list-style-type: none"> • follow-up on audit findings • communicate performance, get feedback • reward or correct employees • repeat Plan steps

There must be such management systems both for the overall management of the company and for each code element. This section covers the team's findings with respect to this overall management system, and section 3 below covers the specific code elements that were reviewed in the re-verification.

Team Findings:

The company has undergone a conversion to the RC14001, ISO14001 management systems. There is a US headquarters certification and each plant site is expected to follow suit with a plant RC14001 certification. As part of this implementation a RC14001 compliance audit was being conducted at the same time as the CCPA Responsible Care re-verification.

As such, the Welland plant site has excellent plan, do, check and act systems covering all aspects of plant operation. Clear direction has been given allowing the Canadian site to modify corporate standards for the purpose of implementing local requirements which include those in CCPA Responsible Care.

What is missing is an overall formal, documented management system for Cytec Canada. The components are largely in place as there is a team of code coordinators, but their mandate and focus don't clearly align with overall Cytec operations in Canada. Part of the reason why lies with the nature of the RC14001 certification of headquarters and the services that the parent company provides to its plants, in that many of the services are clearly not the purview of plant personnel. This clearly impacts on the delivery of Responsible Care as outlined in the lead-in to this section:

“It is a requirement of Responsible Care that companies have documented, sound management systems capable of ensuring that all operations of the company across all business units, functions and sites meet the ethic, codes of practice and other expectations of Responsible Care on an ongoing basis.”

The company has a formal team chartering process which should be applied to the purpose of creating a strong overall team approach to managing Responsible Care in Canada.

It is a finding requiring action that a documented management system for Cytec Canada (to differentiate from Cytec's Welland Site RC14001 Management System) covering all aspects of Cytec's operations in Canada and all Codes of Practice does not exist.

The company keeps an updated codes of practice assessment which is an excellent tool for determining the current state of Responsible Care in Canada. The team found, in general, that the responses were well thought out and informative but they were not overly consistent between codes with some elements being dealt with in appropriate detail and some having a simple 'yes' as a response. In addition, some of the responses could be questioned as to whether the intent of the code has been interpreted correctly (e.g. The response to 3.4 in the Manufacturing Code is to refer to 2.7 in the same code – 2.7 addresses “Employee, Community, Environmental Protection of plant closure/demolition (a reactive situation), whereas 3.4 attempts to deal with impact minimization in the design stage (a proactive situation)).

The system put into place was in response to a finding in the 2005 re-verification and generally meets the requirement. The finding is show below.

“A Finding Requiring Action (FRA) is that although the company has reviewed the 151 expectations of Responsible Care®, it is a CCPA requirement that the cross-reference of these expectations to relevant management systems be documented and have taken place. The annual commitment from the Executive Contact of the company to CCPA requires a review of the issues to ensure they are still in place.”

The team feels that there is still some work to do in this area.

There is an opportunity to improve the Codes of Practice assessment process by establishing a minimum standard for consistency of response within and between codes as well as scrutinizing responses to ensure the intent of the code has been met.

There is an opportunity for improvement to include a review of the Codes of Practice assessment in the annual Management System Review of the Cytec Canada Responsible Care Management System (to differentiate from the Cytec Welland Site RC14001 Management System).

The company's Executive Contact attests annually to the CCPA about the state of Responsible Care in the company in Canada. The process at Cytec is not formal but it is well considered, based upon the Executive Contact's experiences and interaction with all code coordinators. A large portion of the consideration is based on plant operations over which the Executive Contact has direct control. There are other aspects of Cytec's operations in Canada not directly under the Executive Contact's control, namely Research & Development, Transportation and Distribution which are either independently managed in Canada or

managed out of U.S. Headquarters. It is the sum over all of these areas about which the Executive Contact attests and a more formal approach involving these areas will enhance confidence in the attestation.

There is an opportunity for improvement to formalize the annual attestation process and create a annual focus for the Code Coordinators Team by including it in the Cytec Canada Responsible Care Management System.

2d) Follow-up on Previous Verification Report Findings, Recommendations, etc.

The team reviewed how the company addressed the findings requiring action and opportunities for improvement cited by the previous verification team in their report to the company. Certain follow-up items are covered in the specific topics below.

Team Findings:

There were three findings requiring action and the team found that all will require follow up. The first one dealt with cross referencing the code elements with Cytec practices and was referenced in 2c) above. The second dealt with community outreach at 2nd party warehouses and is referenced in 3h) below. Finally, the third dealt with the building of a documented management system for community dialogue and it is referenced in 3m) below.

In general, the team felt that all opportunities for improvement were adequately dealt with.

2e) Response to Incidents and Concerns since the last Verification

Since the way in which unplanned situations are handled shows the influence of the Responsible Care ethic and responsiveness of the management system, the team looked at the issues, incidents and concerns that have arisen since the last verification and how the company has handled them. Some of these may be covered under individual topics below, as noted.

Team Findings:

The team found that the company has an excellent incident and accident investigation procedure and applies it well in excess of corporate requirements. The company has specific categorization criteria and specific rules about applying root cause analysis. However, the Executive Contact's personal goal is to have a root cause done on any incident that is repeated three times.

The company has worked diligently to ensure buffer zones are maintained around the plant site. They have arranged with municipal government to include a clause in residential property sales contracts stating that the purchaser acknowledges the presence of Cytec in the community.

2f) Performance Measurements

The 'check' step of a management system is the part that shows the effectiveness of the

system, and a key question is: “What does the company check as its indicator of performance?” For a few items – emissions & wastes, occupational safety & health, incidents related to transportation or process operations – C.C.P.A. specifies measures for reporting under Responsible Care. Most other areas are left to the discretion of each member or partner. The team was asked to review and comment on the measures used by the company to track and improve performance. Some of these are covered under specific sections below, but general comments are given here.

Team Findings:

The team found that the company maintains a suite of performance measures and submit data into the CCPA as required. The company has excellent “Monitoring & Measurement”, “Evaluation of Compliance” and “Non-Conformances” procedures under their Welland Site RC14001 system. There are planning and analysis components to the management system and the data is well communicated to employees, the plant's CAP and to the local CAER group, as appropriate.

However, the team did not see any evidence of monitoring and measurement of Responsible Care outcomes by Cytec Canada. It appears that the Welland Site is well served while overall Responsible Care monitoring and measurement have not been considered. It is appropriate for the Canadian team (when formed) to consider the overall performance of Cytec Canada for the purposes of maintaining code compliance, determining trends in performance, continuous improvement and providing data for the annual attestation process.

There is an opportunity for improvement to enhance the 'check' step of the overall Cytec Canada Responsible Care Management System by integrating CCPA required measures and developing appropriate measures to determine the ongoing effectiveness of Responsible Care within Cytec Canada's sphere of influence.

3. Team Findings for Specific Code Management Systems

In examining how the company is fulfilling the specific expectations of Responsible Care, the team focused first on four topic areas identified as priority items by the CCPA board of directors for the period 2005-2008. These are process safety management and the related site emergency response, product stewardship and environmental management.

3a) Process Safety Management (PSM)

The team looked at how the hazards and risks from potential episodic ('sudden') incidents are identified and controlled at the company's sites, including awareness and understanding of the methods used for assessment and the techniques for hazard control, and how these are applied and kept current. This includes how the company's sites rank based on the *Site Self-Assessment Tool* of the Chemical Institute of Canada – whether they meet criteria for the “essential” level of PSM, and how the company has assessed the value of aspects beyond the essential level

Team Findings:

The team found that the company has assessed their Welland Site at the 'Enhanced' level using the MIACC Site Self-Assessment Tool. This is an excellent statement as to where the company stands on Process Safety, however, there was no documented decision about the need, or lack of need, to proceed to the 'Excellent' level.

It is a finding requiring action that there is no documented decision about the need, or lack of need, to move to a higher level of PSM as described by MIACC in their Site Self-Assessment Tool.

The company conducts regular and frequent PHAs (Process Hazard Analysis) and has an effective management of change (MOC) process. They have an active and effective internal audit program and have had external 3rd party environmental audits conducted.

3b) Product Stewardship

For this aspect of Responsible Care, the team examined the company's processes for:

- assessing the exposures of people to its products over their life cycles, assessing the potential health implications of these exposures, communicating information to those potentially affected and taking action to prevent health impacts;
- ensuring that their products are not used by terrorists, the illegal drug industry or others who might use them for illegal purposes; and
- ensuring that suppliers of chemicals are meeting the intent of Responsible Care.

Team Findings

Due to the nature of the chemicals Cytec Canada produces and their intended uses the team found that the company is very active in disseminating information about the potential health implications of exposure to the products. The company has produced training materials related to all aspects of proper handling, use and disposal of its materials and quoted some 30 training sessions reaching 584 participants.

They make use of a toll manufacturer in Australia (under a contract with their US parent) but have had a Canadian employee audit the physical facilities. This employee has developed an extensive Product Stewardship manual for the toller. Since the contract is handled through corporate headquarters there is minimal involvement by Canadian technical experts, however since Cytec Canada ships product to Australia and accepts empty containers in return a higher level of knowledge of their operations would be desirable.

There is an opportunity for improvement to better understand the toll operation in Australia to ensure Cytec Canada that all aspects of Responsible Care are being met

The corporate parent has two standards covering interactions with suppliers and customers/distributors (Standards 203 and 204) which govern all interactions and are strongly focused on responsible management of chemicals.

There have been no incidents with phosphine to date, and only one incident last year with a fumigant customer where an error in procedure was made.

The company does not have a policy or procedure for the disposal of non-returnable containers for flotation chemical products and the team felt this left the company vulnerable to inappropriate container usage.

There is an opportunity for improvement to establish guidance on disposal of non-returnable containers for flotation chemical products to avoid inappropriate container usage.

The company has very extensive procedures, programs and guidance on understanding the potential for and avoiding the sale of products for illegal purposes.

3c) Site Security & Emergency Response

The team looked at how the company had identified and assessed the security vulnerability of its sites, and how it had selected and implemented countermeasures to address security concerns. The team also examined how the company assesses the full range of risks its site operations may present to their communities, together with the process for liaison with local emergency officials at each site, and for developing, coordinating and testing site emergency plans with those of the community.

Team Findings

The team found the the site has performed its site vulnerability assessment and initially determined that it was a Tier II rated site. Corporate assessors along with 3rd party professionals conducted the final SVA physical audit and issued the report. The action items have all been completed.

The company has done an outstanding job is preparing for site emergencies and in working with the community to mitigate any such happening. The in-house emergency response team consists of 6 members who train monthly in the handling of emergencies involving the company's chemicals. Every two years members are scheduled for off-site training (e.g. Pueblo, Colorado). Since the plant operates 24/7 each shift has its own fire brigade and designated captain who also train monthly (some members having had external training, e.g. Technical Level 1 Fire Training from Lambton College Fire School).

The company tests its emergency alarm weekly and does an unannounced quarterly test of response to the emergency alarm

Externally, the company is part of the local Niagara CAER group and participates in a 5 year plan for emergency response exercises, and as it turns out, 2008 is Cytec's year.

Niagara CAER is a group of 8 member companies with a full time Executive Director. The

purpose of the group is to coordinate communication with the community and coordinate emergency response exercises in the community for the mutual benefit of the member companies. Membership in the group requires that each company have an up-to-date emergency response plan on file with their local fire department and Regional Niagara EMO. The planning for the annual community emergency response exercise comes under the auspices of Niagara CAER. The group maintains a web site where the community can find relevant information and other newsworthy items. For instance, the news banner at the web site is currently announcing "2005 Cyttec Responsible Care Recertification Report posted"!

There is an opportunity for improvement to ensure data posted on the Niagara CAER web site pertaining to Cyttec is current.

3d) Environmental Management

In addition to examining in general the company's performance in reducing its environmental "footprint, the team looked specifically at the company's performance history and 5-year projections regarding greenhouse gas emissions. This included actions both taken and planned, and whether through direct reduction of emissions or indirect reduction through such measures as improved efficiency in use of energy or materials, changes in technology, etc.

For fact-finding purposes only, to assist CCPA in developing recommendations for addressing growing concerns over water consumption, the team also reviewed any actions taken by the company to identify and reduce its usage of water.

Team Findings

The team reviewed the company's emissions and determined that they are a small emitter of greenhouse gases. Emission reductions are prioritized based on the identification and evaluation of risk and implemented through the setting of objectives and targets. Recent projects have reduced H₂S and HCl emissions through the installation of scrubbers. A reduction target of 3% has been set for energy and waste for next year.

The company has recently realized a 49% reduction in waste water by evaluating their processes for handling phosphorous wastes. In the past these wastes would be diluted to meet city specifications and subsequently disposed of. By locating a waste handler that can accommodate phosphorous and finding two internal sources of dilution water the company has reduced its shipments from 2 truckloads per week to one truckload every two weeks.

As part of the mandate of the Niagara CAER group annual combined emission reports are published on the web site. This is an excellent venue for delivering information vital to a community's understanding of the impact of industry on the local environment and the efforts taken to reduce the overall impact footprint. In checking the web sites of other regional CAER groups it appears that it is a unique practice.

Although not a specific Cyttec undertaking, it is a best practice that the Niagara CAER group publishes and maintains an annual report detailing the combined emissions of member companies as well as their historical performance, summaries and explanations.

In addition to examining how the company has performed in the four priority topic areas, the team then looked into some additional selective areas of focus, as noted below.

3e) Visibility & Employee Awareness of Responsible Care

Here the team looked at how the company seeks to make Responsible Care a visible part of its facilities and its internal and external communications, and how it ensures that all employees understand the essence of Responsible Care and its relevance to their job activities and decisions.

Team Findings:

The findings for this section have been detailed in section 2b) Employee Awareness.

3f) Occupational Health & Safety

The team looked at the company's processes for continuous improvement in protecting the safety and health of employees, contractors and visitors.

Team Findings:

The team found that the company has excellent health and safety programs in place. Incidents and accidents are reported diligently with a good focus on near misses. Criteria is in place to escalate an investigation to root cause analysis with special consideration to invoke root cause should any particular type of incident be repeated three times.

Safety performance is excellent for both employees and contractors and the trend data is largely in a positive direction.

There is a plant behaviour based safety (S.A.F.E.) program in place managed by a joint management and worker committee. Participation rates are low (40%) but steady over the last three years.

There is an active Joint Health and Safety Committee (JH&SC) whereby improvements with a safety perspective can be implemented, but consensus is that management is very responsive to direct approach and safety improvements are not a concern.

Industrial hygiene monitoring is done on a frequent basis and due to the nature of the chemicals on site attention to personal protective equipment is very high.

The site has a nurse and doctor on site, part time, to implement corporate medical policies. The nurse is responsible for delivering hearing, ECG, blood, pulmonary and vision testing as well as participating on the plant wellness committee. The doctor provides annual physical

exams for employees over 40 and biennial exams for employees under 40. The exams are compulsory, either with the company physician or the employee's own physician.

3g) Transportation Security

The team looked at how the company assesses the risk of deliberate misuse of products or raw materials in transit and provides protection against such risks.

Team Findings

The team found the company has excellent programs to minimize the risk of diversion of the company's products. All drivers of high hazard materials are trained by Cytec and the drivers are required to pass a test. The dedicated trucks are all GPS tracked, the drivers must report in at fixed intervals and all stopovers must be at secure sites.

3h) Risk Communications

The team reviewed the company's system for regularly assessing the full range of risks its site operations present to their communities – from worst imaginable and worst credible scenarios down to more likely but lower risks – and for ongoing communication to and dialogue with the potentially affected communities.

Team Findings:

The company commissioned a worst case scenario (WCS) study in 2000 and presented the results to its community in the fourth quarter of that year.

The underlying conditions at the plant site have not changed since that time and the company has once again commissioned a WCS study for four of its most hazardous materials. The report is currently in draft. There is no plan to communicate the results to the community as the company feels the results are consistent with the previous work. The team feels this approach will miss changes in the makeup of the local community and is not totally aligned with the intent of the 'ongoing communication to and dialogue with' statement from the intro section, above. In fact, there is a private school within the affected area and it is a certainty that some of the student body and probably some of the teachers will change on an yearly basis. The requirements for a documented process for ongoing communication was the subject of FRA#3 from the 2005 re-verification and the team feels that it was not adequately dealt with.

There is an opportunity for improvement to review, on a regular basis, the community make-up to ensure worst case scenario information is delivered to as many potentially affected community members as possible.

There are additional comments about risk communications given below in section 3m).

3i) Social Responsibility

The team investigated the ways the company has provided benefits to, and worked to

understand and further the social aspirations of, its local communities and broader society beyond the boundaries of EH&S performance.

Team Findings:

Cytec does not have any specific corporate social responsibility policies. The company supports employees internally to develop to their maximum and supports analysis of employee opinions about how the company functions with a goal of continually improving management-employee interactions and hence company performance. The company supports local management to become involved with their communities and provides funds to support local community activities and projects.

Some of the support provided by the Welland site are:

- presentations at senior elementary school career days
- earth day tours and career presentations to local secondary school
- Brock University tours
- support of Brock University Biology Dept. field studies
- support for Niagara CAER to sponsor public speaking competition
- support for Niagara CAER to donate to:
 - Children's Safety Village
 - Niagara Falls Fire Dept. CAER bears
- major funding (5 yr. program) for Greater Niagara General Hospital
 - YMCA Community Center, Nova House
- United Way
- support for employee involvement in:
 - Big Bike ride for Heart and Stroke
 - cycling for MS
 - Heart, Niagara
 - fund raising for cancer research
- sports sponsorship (baseball, hockey and fastball teams)
- Public Advisory Committees:
 - Water Quality Protective Strategy
 - Welland River Remedial Action Plan
- Niagara Chamber of Commerce
- Niagara Committee to attract Physicians

3j) TransCAER Outreach

TransCAER is the CCPA program for Transportation Community Awareness and Emergency Response. It involves the company's approach to preventing transportation incidents, its transportation emergency response plan, and also outreach to communities through which chemicals are transported. Company responsibilities are decided by regional TransCAER committees formed from the members and partners in each region. The team looked at how the company has participated in TransCAER outreach in each region where it has facilities, and how effectively the Responsible Care ethic drives the building of relationships with targeted stakeholder groups.

Team Findings:

The company participates in TransCAER outreach through its membership in the Region 3 (Niagara through Cambridge) group. They have met all their attendance targets and are currently working to bring the safety train to the Niagara community.

3k) Carrier Selection

The team looked at the company's process for establishing criteria for the selection of road, rail, marine, pipeline and air carriers, and for ongoing assessment of those carriers against those criteria.

Team Findings:

The company ships its products by rail, truck, marine and air and had no incidents in 3514 shipments in 2005. Of this 2005 total approximately 90% were by truck and for bulk truck shipments the company has an approved carrier list and all carriers must be audited by QRC as well as being approved via a corporate program. They use two freight forwarders (audited by QRC) for their marine shipments.

3l) Engagement with Elected Officials

Since part of Responsible Care is a commitment to assist in the processes of sound public policy development consistent with the criteria for sustainable development, the team reviewed the company's process for establishing ongoing relationships with elected officials (i.e., MPs, MPPs, city councillors, etc.) in constituencies where the company has a presence, to acquaint those officials with the nature of the company's operations, economic impact, Responsible Care commitment, activities and public policy concerns, and to understand the elected officials' interests and concerns. Also reviewed were the company's engagement in CCPA activities aimed at assisting in the development of sound public policy (e.g., Parliamentary Day, policy discussions, lobbying, etc.).

Team Findings:

The company participates in CCPA committees and its leadership group, have taken part in the 2006 Parliamentary day in Ottawa and 2007 at Queens Park.

They have invited their local MP, MPP and Mayor to their 2007 open house and took the Mayor of Niagara Falls and the Business Development Group on a plant tour (with detailed presentation) in 2006.

3m) Community Dialogue

The team looked at how the company's broader process for dialogue with its communities has been working since the previous verification, including the identification of stakeholders, community issues and concerns, how concerns were addressed and the choice of dialogue methods. They looked at the effectiveness of the management system in ensuring the company is planning, implementing, evaluating and continuously improving its relationship with the community.

Team Findings:

The company has chosen several venues for community outreach. These include projects with Brock University related to research, Welland Wire for employees and immediate neighbours, Community Advisory Panel of residential neighbours and OxyVinyl, membership in the local Water Source Protection Committee for Niagara Region, Niagara CAER, conservation authority and suggestions from employees on community events. The company should be commended for having a diversity of broad based activities. The community representative on the verification team has received several questions and input from neighbours who feel very comfortable in using her as a sounding board for issues. However, there does not seem to be an overall management plan for communication which must include prioritization of risk both to the community by Cytec and to Cytec by the activities of its neighbours.

The company has not relayed its Worst Credible or Worst Possible Scenarios to the community since 2000. The WCS needs to be part of the management plan for communication not only for the Welland Plant but for all sites in Canada where Cytec products are manufactured and stored. This includes 2nd party warehouses.

Findings #2 and #3 from the 2005 re-verification deal with risk assessments and communications with neighbours at 2nd party warehouses and a documented community communications and dialogue process, respectively. The team feels that the response to these findings is not adequate.

The response to Finding #2 was "General Procedure Memorandum No. 31 – Third Party Facilities Who Manage Cytec Materials". This does not appear to deal with those situations where the company's products are stored in 2nd party warehouses and thus doesn't address the requirement to ensure that communications with neighbours has been conducted.

The response to Finding #3 was "RC14001: 4.4.3 Communication". Section 5 in this document is "External Communications". The team feels this does not adequately address the community dialogue requirements of Responsible Care.

The company should review the guidance given (especially) in the lead-in paragraph of section 7 of the "Responsible Care Re-Verification 2005-2008" document (the current re-verification protocol) and the other sub-sections of section 7 for guidance on building a sustainable program. Please also review the Worst Case Scenario guidance given as Appendix 3 of this report

It is a finding requiring action that a documented community communication and dialogue management system for Cytec does not exist. Such a plan should include providing information of WCS, annual objectives for the management team, responsibilities for the activities and a method of measuring their effectiveness annually.

3n) Areas of Focus Identified by the Company

None

3o) Additional Areas Addressed During the Re-verification

The team conducted the Re-verification in conjunction with a RC14001 Certification Audit and attempted to overlap to the extent possible.

While there were areas where overlap is feasible there are other areas where the nature of the re-verification process differs significantly from the certification audit process and it became more productive to travel separate paths.

There are possibilities to develop synergies between the two processes and these are covered in a separate document sent to the Overall Responsible Care Coordinator.

4. Conclusion

Cytec Canada Inc. has outstanding programs and processes in place to protect its people, the environment and the local community. It takes its responsibilities very seriously but delivers its messages in a very personable way. It was clear to the team that most company employees live the ethic of Responsible Care.

The company in Canada is, however, one plant site among many, all of which ascribe to the RC14001 protocol. While this is commendable and provides a method for the company to standardize its operations the team felt that there is a need to focus on the larger picture of Cytec's operations in Canada (overall) in addition to plant operations as described in their RC14001 certification. This situation formed the basis of the three Findings Requiring Action described in the body of the report.

5. Company Comments

The audit was performed in a professional manner and identified some areas for improvement which we will strive to implement. Our site has adopted the Responsible Care ethic and commitment wholeheartedly.

CCPA should consider changing its audit protocol to reflect the situation where manufacturing plants in Canada are part of larger multi-national corporations. In these situations the Site Manager may only have control of the plant and not of the other operations in the country.

Appendix 1: Company Description

This is very brief overview of the company and its operations covered by the re-verification.

Cytec Canada Inc., is a wholly owned subsidiary of Cytec Industries, with Canadian Corporate Headquarters located at 9061 Garner Road, Niagara Falls, Ontario. The Canadian Headquarters is also the location for the only manufacturing site in Canada, operating the largest Phosphine Gas/Derivatives facility in the world.

The Canadian Site Manager reports to one of the so called Cluster Managers, who reports to the VP of Manufacturing who in turn reports the President of Specialty Chemicals. The Niagara Falls facility also serves as a distribution centre for a large number of re-sale products (chemicals) manufactured by Cytec at other (non-Canadian) sites and sold /distributed to Canadian customers.

Cytec Industries is comprised of 3 core business groups: Specialty Chemicals, Engineered Materials and Building Block Chemicals. The Specialty Chemicals group is further sub-divided into 2-divisions: performance chemicals and surface specialties. The Phosphine and Phosphorous Specalties group is part of the performance chemicals subdivision.

Appendix 2: Team and Contacts

This section identifies:

- the members of the verification team, including community reps.(unless shown in the body of the report);

Name	Affiliation	Representing
Gerry Whitcombe	CCPA Verifier	Industry (team leader)*
Bob Scott	CCPA Verifier	Industry*
Kris Lee	CCPA Verifier	Community at large*
Mabel Biggar	Community representative	Niagara Falls Community

Team members assigned by C.C.P.A. are shown by an asterisk (*).

- the persons contacted during the verification, both inside and outside the company;

Name	Position
Martin Lehman	Plant Manager, CCPA Executive Contact
Ken Milo	Safety, Health and Environmental Supervisor, Overall Responsible Care Coordinator
Jim Blain	Safety & Industrial Hygiene Coordinator, CAER Coordinator
Anna Macugajlo	Product Stewardship; Product co-ordinator
Roger Cavasin	Product Stewardship; Sales Manager
Mark Griffiths	Product Stewardship; Sales Manager
Kelly Mischuk	Environmental Technician, Hazardous Waste Code Coordinator
John Barnett	Supply Chain Manager, Transportation and Distribution Codes Coordinator
John Dunn	Coordinator, Niagara CAER
Dr. Donato Nucciarone	Research Manager, R&D Code Coordinator
Angelo Melaragni	Chemist (SAFE committee)
John Rowe	Pilot Plant Operating Technician (SAFE committee)
John Corrigan	Instrument Technician (SAFE committee)
Rob Edwards	Gases Operator (JH&SC)

Bryan Sebben	Gases Operator (JH&SC)
Diane Moes	Administrative Assistant (SAFE committee)
Joe Cuvillo	Warehouse Operator (SAFE committee)
Peter Cahill	Derivatives Operator (SAFE committee)
Gate Vachon	Shipping/Receiving Clerk (JH&SC)
Tom Hynes	Plant Insulator (JH&SC)

- **a brief summary of the process by which the information was obtained:**

The re-verification took place over several days during December, 2007 and January, 2008. On December 10 the re-verification team (3 member CCPA appointed team plus the local community representative) held a planning meeting at the Welland Plant site in Niagara Falls, Ontario. The purpose of the meeting was for team building, for review of the information package, to meet with the principal re-verification contact.

The second and third days of the re-verification were held on Tuesday and Wednesday, January 15 and 16, 2008 also at the Welland Plant site. Here the team (described above) met with company officials and employees, had lunch (on day two) with worker representatives of the Joint Health and Safety Committee and SAFE committee, had dinner (on day two) with representatives of the company's CAP, reviewed documentation and toured the plant site.

Appendix 3 – Worst Case Scenarios

Every site must have determined its Worst Possible and Worst Probable Case Scenarios.

- a. The worst possible scenario must be considered without any mitigating protection, using industry recognized guidelines.
- b. For significantly large warehousing facilities containing extensive quantities of flammables and/or poisonous materials, an unmitigated fire should be the worst possible scenario.
- c. Community First Responders must be informed of both scenarios and understand their possible impact on the community. This communication must include a map of the area showing the impact perimeter of the scenarios with sufficient detail to show the location of residential and business neighbours and other important public buildings such as schools, hospitals, community centers, or convalescence homes in the affected area.
- d. The company must decide whether First Responder capability is sufficient to handle these situations to the company's expectation. If not, the company must decide what to do about it.
- e. Each facility needs to communicate to its community and stakeholders both scenarios.
- f. Each facility needs to communicate to its WCS-affected residential and business neighbours, how it may affect them, what "Shelter in Place" means if this is the appropriate course of action for neighbours to take, and the process involved in when to take shelter, how they will be told, and who will tell them when to do so, etc.
- g. Each facility needs to reconfirm its WCSs on a regular basis, and specifically when a substantial change in facility operations occur, and re-communicate WCS information to First Responders and those potentially affected.
- h. Where outside emergencies could affect facility employees' health or safety, each facility needs to determine if "Shelter in Place" is the appropriate action to take, and to provide a secure location, and to develop a management system to ensure timely notification of "In-Charge" personnel to manage taking appropriate shelter.
- i. Each facility needs to review their WCSs with their First Responders/Key Community Staff on a regular basis that will allow key personnel to remain aware of important WCS issues as personnel change and to ensure that changing community conditions result in the community still being able to continue to cope with these emergencies.

The WCSs need to be part of each facility's annual Responsible Care review to ensure they are current, and adequately communicated to all stakeholders, including new employees, and that emergency procedures can cope, to the company's expectations, with the emergency.

Note this includes all company owned manufacturing facilities, terminals, warehouses, transfer facilities and unloading facilities. It is also expected that the company implements a management system to conduct a current self-assessment whenever a facility implements changes that affect their WCS or on a predefined review frequency.